Claims

[c1] A method for configuring a programmable logic controller (PLC) having a protocol, said method comprising the step of providing an extensible markup language (XML) schema for the protocol of the PLC.

[c2] A method according to Claim 1 further comprising the step of configuring the PLC utilizing an XML file with grammar at least partially according to the schema.

[c3] A method according to Claim 1 further comprising the step of utilizing the schema to validate at least one XML file.

[c4] A method according to Claim 3 wherein said step of utilizing the schema further comprises the step of utilizing the schema to validate at least one XML file created by a configuration tool.

[c5] A method according to Claim 1 wherein said step of providing an extensible markup language schema further comprises the step of providing an extensible markup language schema for a propriety protocol of the PLC.

[c6] A method according to Claim 1 wherein said step of providing an extensible markup language schema further comprises the step of providing an extensible markup language schema including definitions for the protocol of the PLC.

[c7] A method according to Claim 4 wherein said step of utilizing the schema further comprises the step of utilizing the schema to validate at least one XML file created by a configuration tool for a protocol different than the protocol of the PLC.

[c8] A method according to Claim 3 wherein said step of utilizing the schema further comprises the step of utilizing the schema to validate at least one XML file parsed from a comma separated variable (CSV) file.

[c9] A method according to Claim 8 wherein said step of utilizing the schema further comprises the step of utilizing the schema to validate at least one XML file parsed from a comma separated variable (CSV) file created by a configuration

tool.

[c10] A method according to Claim 8 wherein said step of utilizing the schema further comprises the step of utilizing the schema to validate at least one XML file parsed from a comma separated variable (CSV) file created by a configuration tool for a protocol different than the protocol of the PLC.

[c11] A method according to Claim 1 wherein said step of providing an extensible markup language schema further comprises the step of providing an extensible markup language schema for an Ethernet Global Data protocol of the PLC.

[c12] A method according to Claim 11 further comprising the step of utilizing the schema to validate at least one XML file.

[c13] A method according to Claim 12 wherein said step of utilizing the schema further comprises the step of utilizing the schema to validate at least one XML file created by an Ethernet Global Data configuration tool.

[c14] A method according to Claim 1 wherein said step of providing an XML schema further comprises the step of providing an XML schema for the protocol of the PLC, the schema including at least one of an Build Information element, a Device element, and an Exchange element.

[c15] A method according to Claim 1 wherein said step of providing an XML schema further comprises the step of providing an XML schema for the protocol of the PLC, the schema including at least one of an Build Information element, a Device element, and an Exchange element, the Build Information element including at least one of a Name element, a Description element, a Tool element, a Validation Code element, a Last Build Date element, and a Last Build Time element.

[c16] A method according to Claim 1 wherein said step of providing an XML schema further comprises the step of providing an XML schema for the protocol of the PLC, the schema including at least one of an Build Information element, a Device element, and an Exchange element, the Device element including at least one of a Build Information element, a Device Configuration element, and a Device

Validation element.

[c17] A method according to Claim 1 wherein said step of providing an XML schema further comprises the step of providing an XML schema for the protocol of the PLC, the schema including at least one of an Build Information element, a Device element, and an Exchange element, the Exchange element including at least one of a Build Information element, a Name element, a Description element, a Producer Identifier (ID) element, a Exchange ID element, a Signature element, a Source element, a Destination element, a Period element, and a Timeout element.

[c18] A method according to Claim 1 wherein said step of providing an XML schema further comprises the step of providing an XML schema for the protocol of the PLC, the schema including at least one of an Build Information element, a Device element, and an Exchange element, the Build Information element including at least one of a Name element, a Description element, a Tool element, a Validation Code element, a Last Build Date element, and a Last Build Time element, the Device element including at least one of a Build Information element, a Device Configuration element, and a Device Validation element, the Exchange element including at least one of a Build Information element, a Name element, a Description element, a Producer Identifier (ID) element, a Exchange ID element, a Signature element, a Source element, a Destination element, a Period element, and a Timeout element.

[c19] A method for configuring a programmable logic controller (PLC) having a protocol, said method comprising the step of utilizing the schema to validate at least one XML file parsed from a comma separated variable (CSV) file created by a configuration tool for a protocol different than the protocol of the PLC.

[c20] A method for configuring a programmable logic controller (PLC) having a protocol, said method comprising the step of utilizing the schema to validate at least one XML file parsed from a comma separated variable (CSV) file created by a configuration tool.